

Proportion of Impulsive Suicide Attempts among Persons Admitted with Suicide Attempts in a Tertiary Care Hospital: A Cross - Sectional Study

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Abstract: Background: Suicides are regarded as a major public health issue worldwide. Attempted suicides are many times more frequent than fatal suicides and a considerable number of these attempts are impulsive. The clinical profile of patients with impulsive suicide attempts seems to be distinct suggesting implications in management and prevention. There appears a paucity of research in Kerala regarding the proportion of impulsive suicide attempts and various risk factors associated with it. Hence, this study was done to estimate the proportion of impulsive suicide attempts, among adult patients admitted with suicide attempts between the age group 18 - 60 years in a tertiary care hospital in Thiruvananthapuram and to compare the clinical and socio - demographic profile of impulsive and non - impulsive suicide attempts. Methods: A cross - sectional study was conducted among adult inpatients (18 - 60 years) admitted with attempted suicide in Medicine, Surgery and Psychiatry wards in a tertiary care hospital in Thiruvananthapuram. Consecutive sampling was used to select 110 subjects. Written informed consent was taken and sociodemographic and clinical details were entered in the semi structured proforma. Lethality and intent of the suicide attempt were clinically assessed. Psychiatric morbidity was assessed using DSM5 criteria, impulsiveness using Barratt impulsiveness scale (BIS) and Stressful Life Events using Presumptive Stressful Life Events Scale (PSLES). Chi square test was used for comparison of proportion. Odds ratio was calculated to determine the strength of association. Binary logistic regression was used to find adjusted odds ratio and their statistical significance. Results: Majority of the participants belonged to age group of 21 - 30years (35.5%) and were females (59.1%). The proportion of impulsive suicide attempts was found to be 47.3%. Most common method was by consumption of insecticide/poisoning. Multivariate analysis using binary logistic regression showed that age less than 30 years, being unemployed, methods of attempt like slashed wrist and drug over dosage, history of psychiatric disorders like borderline personality disorder and adjustment disorder and impulsiveness were found to have statistically significant association with impulsive suicide attempts. Conclusion: The proportion of impulsive suicide attempts was found to be high. The distinct clinical and sociodemographic profile suggests the need for a thorough psychiatric evaluation of every suicide attempt and steps for its intervention and prevention.

Keywords: Suicide Attempt, Impulsive, Adult, Public health, Suicide Prevention.

1. Introduction

Suicide across the world is regarded as a major global public health problem. More than 700, 000 people dying from suicide annually according to the World Health Organization. A considerable portion of these deaths are attributed to impulsive suicide attempts, a phenomenon that is less premeditated and arises from sudden emotional turmoil or crises. Impulsive suicide attempts, unlike planned suicides, are characterized by a lack of forethought, often occurring within minutes or hours of the triggering event¹. Impulsive attempts are made in relatively earlier stages of suicide ideation; consequently, they have less intent than non - impulsive attempts^{2,3}.

These attempts are often distinguished by their spontaneous nature, driven by overwhelming emotions rather than a prolonged contemplation of death⁴. The primary difference between impulsive and non - impulsive suicide attempts lies in the degree of planning involved. Non - impulsive suicide attempts tend to involve meticulous preparation, whereas impulsive attempts happen in response to immediate, acute stressors with little warning.

These attempts are more likely to involve less lethal methods, such as drug overdoses, as opposed to firearms or hanging, which are often associated with planned attempts⁵.

Several factors increase the risk of impulsive suicide attempts. These include underlying mental health conditions, such as depression, anxiety, or borderline personality disorder, which are characterized by emotional dysregulation⁶. Other contributing factors include substance abuse, particularly alcohol and drugs, which impair judgment and increase impulsivity⁷. Social stressors, such as relationship breakups, financial difficulties, and social isolation, also play a significant role in triggering these impulsive actions⁸.

Impaired cognitive control, combined with heightened emotional arousal, creates a situation where impulsive actions, including suicide attempts, become more likely in the face of acute stress⁹. Individuals prone to impulsive behaviors often exhibit reduced prefrontal cortex activity, which is responsible for impulse control and decision - making. This neurobiological finding helps explain why individuals with impulsive traits are more susceptible to acting on suicidal thoughts during moments of crisis.

Impulsive suicide attempts in adults represent a complex interaction between psychological, social, and

neurobiological factors. Given their sudden onset and the high lethality of some methods used, these attempts pose a significant challenge to prevention efforts. Understanding the risk factors and underlying mechanisms can help in developing interventions to reduce impulsive suicide attempts, particularly through improving emotional regulation, providing crisis support, and addressing underlying mental health conditions. Thus, the difference in the clinical and socio - demographic profile of patients with impulsive suicide attempts suggest implications in management and prevention.

There appears a paucity of research in Kerala regarding the proportion of impulsive suicide attempts and various risk factors associated with it. Hence, the aim of this study was to estimate the proportion of impulsive suicide attempts, among adult patients admitted with suicide attempts between the age group 18 - 60 years in a tertiary care hospital in Thiruvananthapuram and to compare the clinical and socio - demographic profile of impulsive and non - impulsive suicide attempts.

2. Material and Methods

The cross - sectional study was conducted in Medicine, Surgery and Psychiatry wards at Government Medical College, Thiruvananthapuram, Kerala over a period of one year. The study was done after taking approval from Institutional Human Ethics Committee.

For the purpose of the study, suicide attempt was defined as self - injurious behavior with a non - fatal outcome accompanied by implicit or explicit evidence that the person intended to die. The attempt was operationalized to be impulsive if the time interval between suicidal ideation and suicidal attempt was within 30 minutes.¹⁰

Consecutive sampling was done to select medically stable participants with impulsive suicide attempt in age group of 18 - 60 years until the calculated sample size (n=110) was reached. Patients having serious medical complication and those who were not willing were excluded from study. Confidentiality was maintained at all stages.

After taking written informed consent from the participants, socio - demographic details and clinical details were obtained by a semi - structured questionnaire. Intent of the attempt was clinically assessed by exploring the intention to die, whether planning had occurred prior to attempt and considering the circumstances of the attempt. Lethality was assessed clinically by considering lethality of method used, whether more than one method was used, whether ICU admission was needed, medical or surgical complication occurred and number of days in hospital. Psychiatric morbidity was assessed using the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition - 5 (DSM - 5)¹¹ criteria.

Impulsiveness was assessed by using the Barratt Impulsiveness Scale (BIS)¹². It is a 30 - item scale with a Likert type format, each item being scored on a four - point ordinal scale, with a total score ranging from 0 to 120. The internal consistencies for this scale in various languages range from 0.71 to 0.83 suggesting the scale is reliable across various cultures.

Stressful life events over the past one year were assessed by using Presumptive Stressful Life Events Scale (PSLES)¹³. This scale was developed in the Indian context. It consists of 51 items, each of which refers to a stressful life event, which is given a weighted mean score. One hundred was the highest stress score and zero no perceived stress.

Statistical analysis: Chi square test and Fisher's Exact test was used for comparison of proportions. Odds ratio and their confidence interval were calculated to determine the strength of association. Multivariate analysis was done for type of suicide attempt with the socio demographic and clinical variables with statistical significance in univariate analysis, using backward elimination method binary logistic regression. Binary logistic regression was used to find the adjusted odds ratios and their statistical significance.

3. Results

Majority (35.5%) of study participants were from age group of 21 to 30 years followed by 29.1% participants below 20 years of age. 59.1% of study participants were females, 47.3% unmarried (47.3%) and 49.2% were educated till plus two. Majority of the subjects were unemployed (52.7%). Sixty percent belonged to below poverty line.

The proportion of impulsive suicide attempts (Time interval between suicidal ideation and attempt less than 30 minutes) was found to be 47.3% (52 out of 110). Most common method was consumption of insecticide/poisoning (32.7%) followed by drug overdosage in 30.9%, Hanging in 20%, wrist slash in 10.9% and other methods by 5.5%. Past history of suicide attempts were present in 23.6% of the study subjects. Psychiatric disorders were present in 68.2% of suicide attempts. Most common was adjustment disorder (19.6%) followed by major depressive disorder (15.5%). Among impulsive suicide attempts, 51.9% had diagnosable psychiatric disorders - Most common was borderline personality disorder (26.9%) followed by Adjustment disorder (19.2%).

Family history of Psychiatric disorders was present only in 8.2% of the study subjects. Family history of suicide/ suicide attempt was present in 12.7% of the study. 49.1% percent of the study subjects had high impulsivity score on Barratt Impulsiveness Scale. 49.1% of the study subjects had high stress score on Presumptive Stressful Life Events Scale taking median score as cutoff. Around 50% of the study subjects had high lethality and 47% of the study subjects had high suicide intent. Intent and lethality of the attempts were found to be low in impulsive suicide attempts.

After the binary logistic regression analysis age less than 30 years (OR 84.18, p 0.005), being unemployed (OR 5.625, p 0.046) methods like slashed wrist and drug over dosage (OR 32.302, p0.001) history of psychiatric disorders like borderline personality disorder and adjustment disorder (OR 21.281, p 0.008) and impulsiveness traits (OR 57.91, p 0.001) were found to have statistically significant association with impulsive suicide attempt.

4. Discussion

The current study was done to estimate the proportion of impulsive suicide attempts among adult patients admitted with suicide attempts, between the age group of 18 - 60 years, in the medicine, surgery and psychiatry wards of medical college, Thiruvananthapuram. A total of 110 patients who satisfied the inclusion criteria were included in the study.

In the current study, a significant proportion (35.5%) of suicide attempters were from the 21 - 30 age group, followed by 29.1% below 20 years. Young adulthood is a critical period for suicidal behavior, especially among individuals aged 20 - 30 years. Studies consistently show that individuals in this age range are at high risk for suicide attempts due to various factors, including the transition to adulthood, financial instability, and relationship conflicts¹⁴. A study by Knipe et al. in South India found similar trends, where young adults formed the majority of suicide attempters¹⁵.

In a case control study done by Srivastava et al in a Government Medical College in South India, to assess the risk factors associated with suicide attempt, a statistically significant association was found between unemployment and suicide attempt, with an odds ratio of 15.8 (95% CI 6.55 - 40)¹⁶.

Majority of the subjects in this study were female (59.1%). Global trends typically show a higher rate of suicide attempts among women, but higher suicide completion among men¹⁷. This is consistent with studies in India, where non - fatal suicide attempts are more frequent in females¹⁵. The higher rate among women could be due to societal pressures, family conflicts, and limited coping mechanisms¹⁸.

47.3% of the study participants in the current study were unmarried. Several studies have found that unmarried individuals are more vulnerable to suicidal behaviors, possibly due to feelings of loneliness and lack of social support. In a study by Kposowa et al, divorced and separated were more likely to suicide than the married¹⁹.

In the present study, 49.2% of the subjects were educated till plus two (higher secondary school level). Lower educational attainment is commonly associated with increased suicide attempts. This may be due to limited employment opportunities and social mobility, leading to feelings of hopelessness. Indian study on farmer's suicide by Bhise et al. have also documented a higher risk of suicide among those with lower education levels²⁰.

52.7% of subjects in the current study were unemployed. Unemployment is a well - established risk factor for suicidal behavior due to its association with financial stress, loss of social identity, and reduced access to resources. Multiple studies like Mathieu et al and WHO reports, have pointed to the significant association between unemployment and suicide attempts²¹.

60% of the participants in this study were below the poverty line. Poverty and financial difficulties are major contributors to suicide attempts, especially in low and middle - income countries. An Indian study by Vijayakumar et al. (2007)

demonstrated that socioeconomic factors, including financial stress and poverty, are significant contributors to suicidal behaviors²².

Impulsive suicide attempts (time between ideation and attempt < 30 minutes) were seen in 47.3% of participants in the present study. Impulsivity is a critical factor in suicide attempts. Studies have shown that impulsive attempts often occur without extensive premeditation, particularly among young individuals and those with personality disorders²³. Literature consistently highlights the role of impulsivity especially in females predicting suicide attempts²⁴. A study done in a tertiary care Government hospital in South India by Kattimani et al in 2015, in which impulsive suicide attempt was operationally defined as one where the time between the occurrence of suicidal idea and the attempt was less than 30 minutes, the proportion of impulsive suicide attempt was found to be 47.8%¹⁰. This result was very much similar to the results obtained from our study. In a study done by Deisenhammer et al²⁵ to find out the characteristics of impulsive suicide attempts, in which the impulsive suicide attempt was operationally defined as one where the time interval between the occurrence of suicidal idea and the attempt was less than 10 minutes, the proportion was found to be 47.6%. This result was very much similar to the result obtained from our study.

A study done by Spokas et al²⁶, to assess the characteristics of individuals who make impulsive suicide attempts, in which the impulsive suicide attempts were defined based on the score of suicide intent scale. The proportion of impulsive suicide attempt was found to be 43.3%, which is similar to result obtained from our study. In a cross sectional study by Williams et al²⁷ on impulsive suicidal behavior, an attempt was considered impulsive if the time between suicidal idea and the attempt was less than 5 minutes. They found that 40.4% of the attempts were impulsive, which is comparable to the results obtained from our study.

Poisoning (32.7%) and wrist slashing (30.9%) were the most common methods in the current study. Poisoning and wrist - slashing are commonly reported methods of suicide attempt in India. A study by Mohanty et al. (2015) indicated that poisoning is the most common method due to easy availability of pesticides in rural areas²⁸. Similarly, self - inflicted cutting is often impulsive and common among younger age groups²⁹.

Sixty eight point two percent of subjects had a psychiatric disorder, most commonly adjustment disorder. Psychiatric disorders are a major risk factor for suicide. Mood disorders, particularly depression, and personality disorders like borderline personality disorder, significantly increase the risk of suicide attempts³⁰. Adjustment disorders are often diagnosed following acute stressors, which is consistent with impulsive suicide attempts³¹.

Family history of psychiatric disorders was present in 8.2%, while family history of suicide was present in 12.7%. Family history of psychiatric illness or suicide attempts is a well - documented risk factor for suicidal behavior. Genetic vulnerability combined with shared environmental stressors can increase the risk of suicide³².

49.1% of participants had high impulsivity scores, and 49.1% had high stress scores. High impulsivity and stress are consistently linked to suicidal behavior. The Barratt Impulsiveness Scale and Presumptive Stressful Life Events Scale are frequently used to assess these traits. High scores on both scales have been associated with impulsive suicide attempts. Baca Garca et al reported that high impulsivity score, low suicide intent and lethality scores were associated with impulsive suicide attempts, which was also in concordance with this study^{33,34}.

Clinically, 50% had high lethality, and 47.3% had high suicide intent. Lethality and intent are important indicators of the severity of suicide attempts. Subjects with an impulsive attempt were less depressed and hopeless compared to those who made a premeditated attempt³⁵.

Age less than 30 years, unemployment, methods like wrist slashing and drug overdose, and disorders like borderline personality disorder were significantly associated with impulsive suicide attempts. Similar predictors have been identified in global and Indian studies. Borderline personality disorder, in particular, is strongly linked with impulsivity and suicidal behavior³⁶.

5. Conclusion

The proportion of impulsive suicide attempts among adult patients between the age group of 18to60 years, admitted with suicide attempts was found to be 47.3%. Impulsive suicide attempts were found to be significantly associated with age less than 30 years, being unemployed, methods of attempt such as slashed wrist and drug over dosage, history of psychiatric disorders like borderline personality disorder and adjustment disorder and those with high impulsivity traits. The distinct clinical and sociodemographic profile suggests the need for a thorough psychiatric evaluation of every suicide attempt and steps for its intervention and prevention. Considering these factors, future studies may focus on larger samples and systematic testing of steps for intervention.

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